

REMARKS/ARGUMENTS

Claims 1-38 were previously pending in the application. Claims 29, 32, 35-36, and 38 are canceled; claims 1, 22-24, 28, 30, 33, and 37 are amended; and new claims 39-42 are added herein. Support for new claims 39 and 40 is found in original claims 9 and 10, respectively. Assuming the entry of this amendment, claims 1-28, 30-31, 33-34, 37, and 39-42 are now pending in the application. The Applicant hereby requests further examination and reconsideration of the application in view of the foregoing amendments and these remarks.

In the Office Action Summary (PTOL-326), the Examiner indicated that claims 1, 2, 9-12, 18-20, 22, 23, 29-31, and 37 are rejected. In paragraph 2, of the office action, the Examiner quoted from 35 U.S.C. 102(b). On page 2 of the office action, the Examiner stated that "Claims 1, 9-12, 18-19, 22, 30-31 are rejected under 35 U.S.C. 102(e)" as being anticipated by Narendra. On page 3, the Examiner appears to reject claim 29, and, on page 4, the Examiner appears to reject claim 37. The Applicant requests clarification from the Examiner as to the specific grounds for the claim rejections under 35 U.S.C. 102 and as to the claims rejected thereunder.

On page 4, the Examiner rejected claim 2 under 35 U.S.C. 103(a) as being unpatentable over Narendra in view of Bhadkamkar. On page 5, the Examiner rejected claim 23 under 35 U.S.C. 103(a) as being unpatentable over Narendra. On page 6, the Examiner allowed claims 24-28 and objected to claims 3-8, 13-17, 21, 32-36, and 38 as being dependent upon a rejected base claim, but indicated that those claims would be allowable if rewritten in independent form. For the following reasons, the Applicant submits that all of the now-pending claims are allowable over the cited references.

Claims 1-22

Claims 1 and 22 have been amended to clarify differences between the present invention and the teachings in Narendra. According to currently amended claim 1, after filtering the audio signal from each microphone to generate a processed audio signal for each microphone, the processed audio signals are combined in a nonlinear manner that suppresses effects of high values to form an acoustic beam that focuses the array on one or more desired regions in space by performing nonlinear signal estimation processing on the processed audio signals from the microphones to generate an output signal for the array, wherein the nonlinear signal estimation processing discriminates against noise originating at an unknown location outside of the one or more desired regions.

Support for these amendments is found, for example, in the section of the specification entitled "Robust Signal Estimation" on pages 5-6. As described in that section, one example of a nonlinear technique that suppress the effects of high values is a trimmed mean, in which one or more of both the highest and lowest input values are dropped, and the output is then generated as the average of the remaining values.

Narendra does not teach or even suggest such a combination of features as currently recited in claim 1. In particular, Narendra teaches a technique that emphasizes the effects of high values when performing its beamforming. In particular, in Narendra, the different beams are sorted and the median value is calculated. See column 8, lines 43-44. Narendra then selects only those beams that have power a predetermined value (e.g., 3dB) above the median value for use in its subsequent tracking and classifying processing. See column 8, lines 44-51. Thus, Narendra does not suppress, but rather emphasizes the effects of high values in its nonlinear processing.

In Narendra, the beamforming purposely focuses on the one or more audio signals having the largest power values. Those signals are used to determine the location (by ABF tracker 40 of Fig. 2) and the type (by ABF classifier 42 of Fig. 2) of the audio source. In the invention of claim 1, on the other hand, the beamforming suppresses those audio signals having the largest values in generating the resulting acoustic beam.

For all these reasons, the Applicant submits that claim 1 is allowable over Narendra. For similar reasons, the Applicant submits that claim 22 is allowable over Narendra. Since claims 2-21 depend variously from claim 1, it is further submitted that those claims are also allowable over Narendra. The Applicant submits therefore that the rejections of claims under Sections 102 and 103 have been overcome.

Claim 23

As amended, claim 23 is equivalent to previously pending claim 3 rewritten in independent form. Since the Examiner stated that previously pending claim 3 would be allowable if rewritten in independent form, the Applicant submits that currently amended claim 23 is allowable.

Claims 24-27

As amended, claim 24 is equivalent to previously pending claim 4 rewritten in independent form. Since the Examiner stated that previously pending claim 4 would be allowable if rewritten in independent form, the Applicant submits that currently amended claim 24 is allowable. Since claims 25-27 depend variously from claim 24, it is further submitted that those claims are also allowable.

Claims 28 and 39-40

As amended, claim 28 is equivalent to previously pending claim 8 rewritten in independent form. Since the Examiner stated that previously pending claim 8 would be allowable if rewritten in independent form, the Applicant submits that currently amended claim 28 is allowable. Since new claims 39-40 depend variously from claim 28, it is further submitted that those claims are also allowable.

Claims 30-31 and 33-34

As amended, claim 30 is equivalent to previously pending claim 13 rewritten in independent form. Since the Examiner stated that previously pending claim 13 would be allowable if rewritten in independent form, the Applicant submits that currently amended claim 30 is allowable. Since claims 31 and 33-34 depend variously from claim 30, it is further submitted that those claims are also allowable.

Claims 41-42

New claim 41 is equivalent to previously pending claim 16 rewritten in independent form. Since the Examiner stated that previously pending claim 16 would be allowable if rewritten in independent form, the Applicant submits that new claim 41 is allowable. Since claim 42 depends from claim 41, it is further submitted that claim 42 is also allowable.

In view of the above amendments and remarks, the Applicant believes that the now-pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

Respectfully submitted,

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